

Rec'd PCT/PTO 03 DEC 2004
10/516880(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
18 December 2003 (18.12.2003)

PCT

(10) International Publication Number
WO 03/105362 A1(51) International Patent Classification⁷: H04B 1/707, 7/02

(21) International Application Number: PCT/IB02/02038

(22) International Filing Date: 6 June 2002 (06.06.2002)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): NOKIA CORPORATION [FI/FI]; Keilalahdentie, FIN-02150 Es-
poo (FI).

(72) Inventors; and

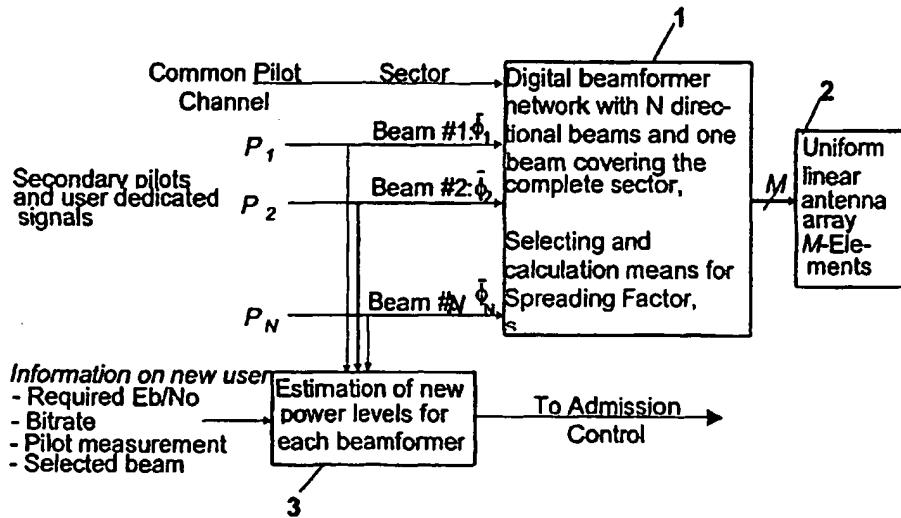
(75) Inventors/Applicants (for US only): PEDERSEN, Klaus,
Ingemann [DK/DK]; Laesogade, 9 3th, DK-9000 Aalborg
(DK). MOGENSEN, Preben [DK/DK]; Elmelunden 13,
DK-9260 Gistrup (DK).(74) Agent: LESON, Thomas, Johannes, Alois; TBK-Patent,
Bavariaring 4-6, 80336 München (DE).(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VN, YU, ZA, ZM, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent
(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SYSTEM AND METHOD FOR OPTIMIZED UTILIZATION OF CODE RESOURCE IN COMMUNICATION NETWORKS



WO 03/105362 A1

(57) Abstract: The invention provides a method, system and network element for providing enhanced utilization of code resource in a cellular systems, preferably a terrestrial cellular CDMA systems, wherein a base station comprises an antenna system which generates several beams. A spreading factor (SF) of the root channelization code sets an upper limit on the maximum bit rate. The spreading factor of the root channelization code is selected according to the set of minimum spreading factors assumed for the different beams. Packet scheduling for parallel beams is provided in such a manner that not all beams transmit on downlink, e.g. PDSCH, with high or maximum bit rates (low Spreading Factor) simultaneously. The packet scheduling in the individual beams is coordinated so that only one of the beams is transmitting with a high bit rate during the same time period. Different scheduling slots are balanced so they require nearly the same amount of code resources.